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ABSTRACT

Pragmatics is the theory of utterance interpretation, as contrasted with sentence interpretation, involving a variety of tasks: disambiguation, reference assignment, resolution of vaguenesses or indeterminacies, restoration of missing or ellipsed material, and recovery of the speaker's attitude and the effects of stylistic variation. The most basic issue is to determine which of two distinct models of communication (encoding/decoding vs. the Grice theory of maintenance of communicative behavior standards) best fits the facts of verbal communication. A pragmatic theory based on the single principle of relevance of utterances and providing a method for comparing utterances' relevance could provide an alternative to the more elaborate Grice theory while preserving and strengthening his original idea. This theory proposes that relevance is the single property that human beings seek in the propositional information they process, whatever its source, and that information regarded as irrelevant or not relevant enough will simply be ignored. The principle questions some accepted ideas about the source of pragmatic variation; instead, it finds variation in contextual assumptions and implications, the accessibility of the assumptions, and the amount of processing effort the hearer is prepared to spend. (MSE)

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Pragmatics: an overview

Deirdre Wilson and Dan Sperber

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PRAGMATICS: AN OVERVIEW

by

Deirdre Wilson and Dan Sperber

1 DEFINITION AND SCOPE OF PRAGMATICS

It is customary to blame the philosopher Charles Morris for the introduction of the term "pragmatics". In his book *Foundations of the Theory of Signs* (1938), he defined syntax as the study of the formal relations among signs, semantics as the study of the relation between signs and their denotations, and pragmatics as the study of the relation between signs and their interpreters or users. This definition is vague enough to have sheltered a number of distinct enterprises, each with its own assumptions and goals. The range of options has been well surveyed by Levinson (1983); here we will simply concentrate on what seems to us the most central goal: an investigation of how utterances are understood. For us, then, pragmatics is the theory of utterance interpretation.

It is also customary to compare pragmatics, the theory of utterance interpretation, with semantics, the theory of sentence meaning. For a whole variety of reasons, someone who knew only the meanings of English sentences would fall far short of understanding quite ordinary utterances in English. In the first place, the sentences ut-

tered are almost invariably ambiguous, vague or elliptical. Consider (1), for example:

(1) *She:* His food is not hot enough.

Any English speaker will know that "he" is used to refer to male human beings or animals; that the word "hot" can mean either *very warm* or *spicy*; that the phrase "his food" can be used to refer to the food he cooked, the food he brought, the food he served, the food he is eating, or, more generally, to any food he bears some relation to; and that this food is being claimed to be not hot enough *for something*, which the speaker has left unspecified. However, someone who merely knew the range of possible interpretations of (1) could not be said to have fully understood it. While semantics specifies the range of *possible* senses and referents for every sentence uttered, it is the job of pragmatics to describe the general principles by which the hearer assigns an *actual* sense and reference on any given occasion of utterance. As this example shows, the choice of an actual interpretation involves a variety of related tasks: disambiguation, reference assignment, resolution of vaguenesses or indeterminacies and restoration of missing or ellipsed material. These tasks are genuinely pragmatic, and must be handled by a theory of utterance interpretation rather than a theory of sentence meaning.

In the second place, utterance interpretation is not merely a matter of discovering what has been explicitly said. Virtually every utterance conveys implicit information whose recovery may be crucial to the interpretation process. Consider (2b) as an answer to (2a):

(2) a. *He:* Do you want some coffee?

b. *She*: Coffee would keep me awake.

It is easy to see what the speaker of (2b) has *said*: she has said that coffee would keep her awake. Normally, however, she would also imply (3):

(3) She doesn't want any coffee.

Indeed the hearer of (2b) could not be said to have fully understood this utterance unless he had recovered the implicit information in (3). However, (3) cannot be regarded as part of the meaning of the *sentence* (2b). The meaning of a sentence is given by listing its logical implications, where the mark of a logical implication is that it is not possible to assert the sentence while denying one of its logical implications. Hence, if (3) were a logical implication of (2b), it ought to be contradictory to say:

(4) Coffee keeps me awake, but I'd love some more.

The fact that (4) is not a contradiction shows that (3) is not part of the meaning of the sentence (2b), though it is clearly part of the information conveyed by the utterance of (2b) in context. Again, it is the task of pragmatic theory to explain how this implicit content is recovered.

In the third place, in addition to its explicit and implicit propositional content, an utterance generally gives some indication of what might be called the speaker's attitude to the information conveyed. Again, recovery of the intended attitude is normally crucial to the interpretation process. Consider (5):

(5) *She:* You're not leaving.

Although the sentence uttered is syntactically declarative, (5) could be understood in context as expressing a statement, a question or a command: that is, it could be used to state that the hearer was not leaving, ask whether the hearer was leaving, or order the hearer not to leave. This is an area which has been investigated in some detail under the heading of speech act theory, and some quite subtle analyses have been developed (see, for example, Bach and Harnish 1979). Hearers can apparently distinguish not only the major categories of statement, question and command, but also a number of sub-varieties of each: under what we have called commands, for example, they can distinguish hints from requests, orders from entreaties and so on. While every language offers a variety of explicit means for the expression of attitude, as this example shows, the speaker's attitude is often left implicit. The implicit indication of attitudes, like the implicit communication of propositional content, falls outside the domain of a theory of sentence meaning and within the domain of pragmatics.

Related to the question of the speaker's attitude to the propositions expressed and implied is the question of how literally they are meant. Consider (6) and (7):

(6) *She:* The audience snored throughout the film.

(7) *She:* I've never had such a lovely meal.

Is the speaker of (6) literally claiming that the audience was asleep and snoring throughout the film, or does she merely want to suggest that the film was dull? Is the speaker of (7) literally

claiming that she has never had such a lovely meal, or does she merely want to insinuate ironically that the meal was awful? That is, does she want to commit herself to the truth of the proposition explicitly expressed, or to the truth of some other implicit proposition instead? Again a knowledge of the meanings of English sentences alone is not enough to distinguish the literal from the metaphorical or the ironical. Again a description of the principles by which such distinctions are drawn falls within the scope of a theory of utterance interpretation as opposed to a theory of sentence meaning.

Finally, there are a number of questions about the effects of style on utterance interpretation. Compare (8) and (9):

(8) Two taxis collided and 30 Scotsmen were taken to hospital. (Woody Allen)

(9) Scotsmen are very mean. They travel in enormously overcrowded taxis to avoid paying full fare. Once two taxis containing 30 Scotsmen collided. The passengers were taken to hospital.

Whereas (8) is mildly witty, (9) is pointless and heavy-handed. Yet the only difference between these utterances is that some assumptions which are left implicit in (8) are expressed explicitly in (9). There is a whole range of examples where two synonymous sentences, or two utterances which explicitly express the same proposition, or two utterances which express and imply the same set of propositions, nonetheless differ in their overall effects. Such examples clearly lie beyond the scope of a theory of sentence meaning and within the scope of a theory of pragmatics proper.

The goal of pragmatics, then, is to answer a variety of questions about utterance interpretation that cannot be answered by a study of sentence meanings alone. The aim is to develop a psychological theory of the general cognitive principles and abilities involved in utterance interpretation. In the next section we will look briefly at two different conceptions of these abilities, two different approaches to the psychology of verbal communication.

2 APPROACHES TO PRAGMATICS

It seems obvious that a theory of communication in general should shed light on the nature of verbal communication in particular. The problem is that there is no single general theory of communication: instead there are two different models, neither reducible to the other and each clearly adequate to a different range of facts. The most basic issue in pragmatics is to decide which model best fits the facts of verbal communication.

According to the first model, communication is a matter of encoding and decoding messages. On this model, for communication to take place there must be a set of messages, a set of signals, and a code: that is, a method of pairing signals with messages. Communication consists in choosing a message and encoding it into a signal which is then physically transmitted, with the original message being recovered at the other end by a corresponding process of decoding. There is no doubt that code systems of communication exist: many systems of animal communication can be described in terms of a code. Indeed the grammar of a natural language may be seen as a code pairing phonetic and semantic representations of sen-

tences, so that two people who know the same grammar will make identical pairings of phonetic and semantic representations. Since, as we have seen, recovery of the semantic representation of the sentence uttered is a stage in the overall comprehension process, it seems that encoding and decoding must play at least some role in utterance interpretation.

Many linguists have tacitly assumed that the code model is the correct model for verbal communication as a whole: that is, that pragmatics is basically an extension of the grammar. The enterprise of formal pragmatics, as set out, for example, by Gazdar (1979), is based on just this assumption. On this approach, a pragmatic description is an arbitrary set of rules which take sentences and descriptions of contexts as input and yield utterance interpretations as output. Pragmatic rules, like linguistic rules, are expected to differ from language to language and culture to culture in fairly idiosyncratic ways, and the task of contrastive pragmatics is simply to note the variation in pragmatic rules between one language or culture and another.

We see no hope of setting up an adequate pragmatic theory along these lines. Pragmatics is the study of how utterances are interpreted in context, but formal pragmatics deals only with the least context-dependent aspects of utterance interpretation. So, for example, someone who says (10a) would normally imply (10b):

(10) a. Some of the mistakes were deliberate.

b. Not all of the mistakes were deliberate.

This is not a fact about the meaning of sentence (10a), because (11) is not a contradiction:

(11) Some of the mistakes - indeed maybe all of them - were deliberate.

However, the implication is carried in all but a few exceptional types of context. It is thus possible to set up a rule stipulating that a noun phrase of the form "some of the X" should be interpreted as conveying "not all of the X" in all contexts except those belonging to this small, exceptional class. On this approach, then, the relation between (10a) and (10b) is dealt with by an arbitrary pragmatic rule which applies in a wide enough range of contexts to be codifiable in a grammar-like way.

However, it seems neither possible nor desirable to extend this approach to other, more context-dependent types of implicit content. Consider (12), for example:

(12) a. *He:* Are you coming to the party tonight?

b. *She:* I hear Jack's going to be there.

Although (12b) would normally be interpreted as conveying an answer to question (12a), in different circumstances it would convey different answers. For example, on the assumption that the speaker of (12b) likes Jack the implied answer will be yes, whereas on the assumption that she wants to avoid him the implied answer will be no. Moreover, neither of these implications would be present unless (12b) was uttered in response to the question in (12a). The interpretation of (12b) is thus context-dependent in a way that the interpretation of (10a) above is not. What is needed here is not an attempt at arbitrary stipulation but a general theory of how contextual assumptions affect the interpretation of utter-

ances, and more particuarly, how they enable the hearer to *work out* the implications of an utterance in context. Similar remarks apply to disambiguation, reference assignment, the recovery of speaker's attitude and the effects of stylistic variation, all of which are highly context-dependent. There has been no attempt to show that formal pragmatics can cover anything other than a very limited domain, and it is unlikely that, given an adequate theory of the genuinely context-dependent aspects of utterance interpretation, even this limited coverage will be needed.

Which brings us to the second model of communication. This is particularly associated with the philosopher Paul Grice (1975), whose main achievement in this area was precisely to outline an alternative to the code model. Grice's basic idea was that people try to maintain certain standards in their communicative behaviour, and that utterances are interpreted with these standards in mind. In particular, speakers try to be truthful, informative, relevant and clear, and hearers try to interpret their utterances accordingly. Returning to (1), for example, the hearer will look, among all the linguistically possible interpretations, for one that a speaker observing the maxims of truthfulness, informativeness, relevance and clarity might have intended to convey. Similarly, a hearer of (10a) above will realize that a speaker observing the maxims of relevance and informativeness, and who knew that all the mistakes were deliberate, ought to have said so; hence, at least as far as the speaker was concerned, not all the mistakes were deliberate. Thus what is handled in formal pragmatics by an arbitrary rule would follow, on Grice's approach, from certain very general principles of communication.

The main difference between the two models of communication is in the level of generality at which they approach the facts of verbal communication. Whereas the code model treats pragmatic interpretation as largely a matter of arbitrary stipulation, on Grice's approach pragmatic interpretation involves taking the meaning of the sentence uttered, in conjunction with background knowledge, inference rules and a set of general pragmatic maxims, and *working out* what the speaker must have meant. Hence this might be called an inferential model of pragmatics. A number of pragmatists, notably Leech (1983), have explicitly adopted this approach. It implies a fundamental distinction between semantics and pragmatics: semantics would fall within the scope of the code model but pragmatics would not. Semantics would fall together with other linguistic abilities like syntax and phonetics, whereas pragmatics would involve general, all-purpose reasoning abilities. This approach seems to us unquestionably correct. In fact we want to take it further. We will argue that even Grice's followers have not approached pragmatic interpretation at a high enough level of generality, and that this is largely responsible for the current weaknesses in inferential models of utterance interpretation.

3 PROBLEMS WITH THE INFERENTIAL MODEL

To say that we know what sort of pragmatic theory we are looking for is not to say that we already have one. Grice left an enormous number of problems unsolved, of which we will mention just three. First, although he pointed out that background or contextual assumptions play a role in interpretation, he said nothing about how the appropriate assumptions were identified, nor what role they played. In interpreting utterance (2b)

above (repeated here for convenience), the hearer would normally be expected to supply the background assumption in (12) and derive the conclusion in (3) above:

(2) a. *He:* Do you want some coffee?

b. *She:* Coffee keeps me awake.

(12) She doesn't want to be kept awake.

(3) She doesn't want any coffee.

Now there may have been no previous mention of the fact that the speaker of (2b) does not want to be kept awake. In that case, how does the hearer know that he is expected to supply this assumption rather than, say, the assumption that she does want to be kept awake? Considering how many background beliefs and assumptions we all have access to, it is a major problem to explain how the correct assumptions - that is, the ones the speaker expected us to use - are actually identified.

More generally, it is obvious that contextual assumptions play a substantial role in disambiguation, reference assignment, the recovery of implicit content, and all the other aspects of utterance interpretation listed above. Yet virtually no progress has been made in establishing (a) what role they play in the interpretation process and (b) how particular assumptions are selected for the interpretation of particular utterances. Indeed, the work that has been done in this area seems, if anything, to have created more problems than it has solved. It has become widely accepted that for communication to be successful at all, speaker and hearer must restrict themselves to contextual assumptions that are *mutually known*:

that is, shared by speaker and hearer, and known to be shared, and known to be known to be shared, and so on ad infinitum (see Smith (ed.) 1982 for discussion). However, it is also generally accepted that it is impossible to establish the existence of mutual knowledge with certainty, since an infinite set of checks would be needed. Enormous effort has been spent on this problem, diverting attention from the fact that even if mutual knowledge could be definitively established, we would still be no nearer knowing (a) what role it plays in the interpretation process and (b) how particular items of mutual knowledge are selected for the interpretation of particular utterances. We have argued elsewhere (Sperber and Wilson 1982) that the mutual knowledge issue is a red herring, and that an adequate account of the selection of contextual assumptions and their role in utterance interpretation can be constructed without reference to mutual knowledge at all.

A second question which Grice raised but did not answer is about the nature of the inference processes used in utterance interpretation, and in particular in the recovery of implicit content. Grice suggested that the recovery of implicit content (in his terms implicated content or implicatures) is governed by the following "working out schema":

(13) *The working out schema for implicatures*

1. He has said that p.
2. There is no reason to suppose that he is not observing the maxims.
3. He could not be doing this unless he thought that q.

4. He knows (and knows that I know that he knows) that I can see that he thinks that the supposition that he thinks that q *is* required.

5. He has done nothing to stop me thinking that q.

6. He intends me to think, or is at least willing to allow me to think, that q.

7. And so, he has implicated that q.

However, it is unclear what sort of argument this is meant to be: it is not even clear which of 1-7 are meant to be premises and which conclusions. What does seem clear is that step 3, at which q, the content of the implicature, is introduced for the first time, is not directly deducible from 1 and 2. Either 3 is simply an independent premise, or it is meant to be derivable from 1 and 2 with the aid of some supplementary premises whose nature has been left unspecified. What (13) provides is not a method for working out the content of an implicature, but merely a method for establishing, once the content of the implicature has been recovered, that the speaker really *meant* it in Grice's special technical sense (see Grice 1968 for discussion). An adequate pragmatic theory should also provide some method of recovering the content of the implicatures themselves: that is, a method of deriving not step 7 but step 3.

Again recent work in this area seems to us to have created more problems than it has solved. A consensus has developed that the inference processes involved in utterance interpretation in general, and the recovery of implicit content in particular, must be non-deductive (inductive or probabilistic) rather than deductive. A deductive

system is a set of rules which, given a set of true premises, will derive a set of true conclusions. A non-deductive system is much weaker: It will merely, given a set of premises and a potential conclusion, say how likely the conclusion is to be true on the assumption that the premises are true. Thus, even if we had a psychologically adequate non-deductive model it would at best explain how an actual conclusion (e.g. an actual implicature) is chosen from a pre-established range of potential conclusions, not how the range of potential conclusions itself was determined. We would thus be left with no more adequate an account of the recovery of implicit content than is provided by Grice's working out schema. Moreover, while the psychology of deductive inference has been reasonably well studied, virtually nothing is known about the psychology of non-deductive systems. As a result, investigation of the inference processes involved in utterance interpretation has simply been shelved pending the construction of some plausible model of non-deductive reasoning by cognitive psychologists. Again we feel that this conclusion has been too hastily reached. We believe that deductive reasoning plays a central role in utterance interpretation, and that a framework in which this role is acknowledged may shed useful light on a wide range of cognitive processes which are generally thought to be non-deductive (see Wilson and Sperber forthcoming for discussion).

A third problem that Grice raised but left unsolved has to do with the nature of relevance and the content of the maxim of relevance. While it is at least intuitively clear what being truthful and informative would involve, the same is not true of being relevant. Someone who lacked the concept of truthfulness, for example, could be told that he could make his utterances truthful by

saying only what he believed; someone who lacked the concept of informativeness could be told that he could make his utterances informative by expressing or implying propositions that his audience did not already know. However, it is hard to see what practical instructions one might give someone who lacked the concept of relevance to make sure that his utterances were relevant. Since considerations of relevance play a major role in virtually every aspect of utterance interpretation, the lack of an adequate account of relevance is a serious weakness in pragmatic theory.

Some years ago we started work on the third of these problems, the construction of a definition of relevance. As our definition developed, it began to shed light on the nature of contexts and the role of inference in utterance interpretation. It also emerged that a suitably elaborated maxim of relevance could do so much of the work performed in Grice's framework by his other maxims that a pragmatic theory based on a single maxim of relevance became a real possibility. In the next section we will sketch, very briefly, the central features of our account, and show how it can shed light on the problems of context selection and the role of inference in comprehension. We will then return to comment on examples (1)-(9) above. Finally we will discuss the implications of our approach for contrastive pragmatics.

4 OUTLINE OF A RELEVANCE-BASED THEORY

Previous work on relevance in discourse has treated the utterance as the unit of relevance; however, little progress has been made in defining relevance in these terms. We want to approach it at a more general level and treat the unit of rel-

evance as the proposition. It seems intuitively obvious that propositional information may be relevant whether or not it is deliberately communicated: for example, the information that my bus is coming will be just as relevant if I simply discover it by looking down the road as it would be if you deliberately communicated it to me by speech or gesture. This suggests that relevance should be defined in the first instance for propositional information; we can then set up a derivative notion of discourse relevance and say that an utterance is relevant in this derivative sense if and only if it communicates relevant propositional information.

Relevance is a context-dependent notion. A proposition that is relevant on one set of contextual assumptions may not be relevant on another: for example, if I already know that my bus is coming, it will not be relevant for you to tell me so. Defining relevance is a matter of deciding what relation has to hold between a proposition and a set of contextual assumptions if the one is to be relevant to the other. The following (attested) example illustrates what we take to be the correct relation:

(14) a. *Flag-seller:* Would you like to buy a flag for the Royal National Lifeboat Institution?

b. *Passer-by:* No thanks, I always spend my holidays with my sister in Birmingham.

To see the relevance of the response in (14b), the hearer must supply something like the contextual assumptions in (15):

(15) a. Birmingham is inland.

b. The Royal National Lifeboat Institution is a charity.

c. Buying a flag is one way of subscribing to a charity.

d. Someone who spends his holidays inland has no need of the services of the Royal National Lifeboat Institution.

e. Someone who has no need of the services of a charity cannot be expected to subscribe to that charity.

From these assumptions, together with the information in (14b) itself, he can deduce the conclusion in (16):

(16) The speaker of (14b) cannot be expected to subscribe to the Royal National Lifeboat Institution.

This conclusion has a property in terms of which we think relevance can be defined: it is deducible from a combination of (14b) and the set of contextual assumptions in (15), but from neither (14b) nor (15) alone. Let us say that (16) is a *contextual implication* of (14b) in a context consisting of the assumptions in (15). Then our basic claim is that a proposition is relevant in a context if and only if it has at least one contextual implication in that context. By this definition, (14b) is relevant in a context consisting of the assumptions in (15), precisely because it enables the contextual implication in (16) to be deduced.

If this definition is correct, it suggests an answer not only to our original question about the nature of relevance, but also to the two remaining

questions about the role of contextual assumptions in utterance interpretation and the nature of the inference processes used. On our account, the role of contextual assumptions is to combine with the content of the utterance to yield the contextual implications needed to establish relevance, and the inference processes involved in utterance interpretation are the deductive inference processes by which contextual implications are derived. This definition, then, seems well worth pursuing, since it promises a solution to the three major problems for previous inferential approaches.

However, a maxim of relevance based on this definition alone would be almost as vague as Grice's original maxim. Virtually every utterance expresses a proposition which would have at least one contextual implication in *some* context accessible to the hearer, and merely instructing speakers to make their utterances relevant would constrain them hardly at all. Suppose, however, that a notion of degrees of relevance could be defined. Then the aim of being not merely relevant, but as relevant as is possible in the circumstances, might turn out to be very constraining indeed. It is this aim which we hope to establish as the single basis of pragmatic theory.

We are looking, then, for some method of comparing the relevance of propositions. If relevance is definable in terms of contextual implications, then an obvious hypothesis is that the more contextual implications a proposition has, the more relevant it will be. This accords with intuitive judgements, as the following example shows. Imagine a hearer with the arbitrarily restricted set of contextual assumptions (17a-e), who does not know that the next candidate to be interviewed is an Italian philosopher.

(17) a. Susan will vote against any candidate she dislikes.

b. John will vote against any candidate he dislikes.

c. Susan dislikes philosophers.

d. John dislikes Italians.

e. If both Susan and John vote against a candidate, he will be rejected.

The most relevant information one could give a hearer with this arbitrarily restricted context would clearly be (18a) rather than (18b) or (18c):

(18) a. The next candidate is an Italian philosopher.

b. The next candidate is an Italian.

c. The next candidate is a philosopher.

In our framework, the reason is obvious: (18a) combines with the context in (17) to yield more contextual implications than either (18b) or (18c), and is thus more relevant in that context than either (18b) or (18c). Hence the hypothesis that relevance increases with numbers of contextual implications is confirmed.

However, a comparison of (18a) with (18d) shows that numbers of contextual implications are not the sole factor in comparisons of relevance:

(18) d. The next candidate is an Italian philosopher and chess is a rather boring game.

On the assumption that the context is still arbit-

rarily restricted to the set of assumptions in (17), utterances (18a) and (18d) will have exactly the same contextual implications; yet intuitively (18a) is the more relevant. The reason, we suggest, is that although (18d) yields the same contextual implications as (18a), it yields them less efficiently: that is, the information that chess is a rather boring game costs the hearer some additional effort to process but yields no reward at all in terms of contextual implications. We conclude that efficiency, or processing effort, is a second factor in comparisons of relevance.

Processing effort is determined by three main factors. First, the complexity of the utterance: the more complex the utterance the greater the processing effort. Second, the size of the context: the larger the context the greater the processing effort. Third, the accessibility of the context: the less accessible the context the greater the processing effort. Some contextual assumptions are instantly accessible, either from memory or imagination or from observation of the physical environment, whereas others take more time to retrieve or construct. Let us say, then, that other things being equal, the more contextual implications a proposition has, the more relevant it will be, and that other things being equal, the greater the processing effort it requires, the *less* relevant it will be. Thus, a speaker aiming at maximal relevance should make sure that her utterance yields a greater range of contextual implications, in a context that is both small and easily accessible to the hearer, than any other utterance she would have produced in the circumstances. A hearer aware of this aim can then bring to the interpretation of every utterance a standing assumption which we call the principle of relevance: that the speaker has tried to be as relevant as possible in the circumstances. We

believe that this principle is the key to utterance interpretation.

5 SOME APPLICATIONS OF THE RELEVANCE-BASED APPROACH

Imagine, then, a hearer equipped with a grammar, a principle of relevance, a set of deductive inference rules, and a memory so organized that at any given moment some beliefs or assumptions will be more accessible than others. How might such a hearer cope with our examples (1)-(9) above? Example (1) illustrates the range of problems involved in determining the explicit propositional content of an utterance:

(1) His food is not hot enough.

We claim that the interpretation that the hearer should choose is the one that satisfies the principle of relevance. It is crucial here that at any one time not all the possible senses and referents for an utterance will be equally accessible: for example, some names of male humans or animals will come more easily than others to a hearer trying to assign a referent to the pronoun "he"; in some circumstances the information that "hot" may mean *spicy* will be unlikely to come to mind. Moreover, there are general principles determining the accessibility of senses and referents, which have been studied in the psycholinguistic literature on disambiguation, and which should enable the speaker to predict with some confidence the order in which interpretations are likely to come to the hearer's mind. Suppose, then, that (1) is said by a waitress who has just been handed a full plate by a customer, to a colleague she is passing on her way back to the kitchen. In the circumstances, an interpretation

that will be immediately accessible to anyone who has seen the incident is that the food the customer has been served is not warm enough for him to eat. Moreover this interpretation, when processed in a context which will again be easily accessible to anyone who has seen the incident, should have enough contextual implications to satisfy the principle of relevance: by explaining what has happened, what the customer said, why the food was handed back, and so on. In our framework, this is the interpretation that should be accepted as satisfying the principle of relevance. A speaker who did not intend it should have rephrased her utterance to eliminate it from consideration and thus save her hearer the wasted effort of going off on the wrong track. We are not saying, of course, that misunderstandings never occur: rather we are suggesting that when they do occur, it will be because the speaker has failed to notice, and hence eliminate, an interpretation that was both accessible enough to the hearer and productive enough in terms of contextual implications to be accepted without question.

Example (2) illustrates the recovery of implicit content or implicatures:

(2) a. *He:* Do you want some coffee?

b. *She:* Coffee would keep me awake.

Here again the principle of relevance is involved. In our framework, to see (2b) as satisfying the principle of relevance, the hearer must supply the contextual assumption in (12) and derive the contextual implication in (3), thus obtaining the answer "no" to the question in (2a):

(12) a. She doesn't want to be kept awake.

b. She doesn't want anything that would keep her awake.

(3) She doesn't want any coffee.

If he was unable to supply the assumption in (12) and derive the conclusion in (3), he would be unable to see the utterance as satisfying the principle of relevance at all. Someone who asks a yes/no question, clearly indicates that what he would find most relevant at the moment is a "yes" or "no" answer to that question. The speaker of (2a) thus clearly indicates that what he would find most relevant at the moment is an answer to his question about whether the speaker of (2b) wants some coffee. Clearly, any normal human being will be in a position to answer that question, and unless she has some even more relevant information to impart, the speaker of (2b) *must* answer it if she is to satisfy the principle of relevance. Only by supplying the contextual assumption in (12) and deriving the contextual implication in (3) can the hearer derive a "no" answer and thus satisfy himself that the principle of relevance has been observed.

We claim that the implicatures of an utterance are contextual assumptions and implications, such as (12) and (3), whose recovery is necessary for the utterance to satisfy the principle of relevance. There is thus no single answer to the question of how implicatures are derived. Implicated conclusions, such as (3), are derived by applying deductive inference rules to the explicit content of the utterance together with a set of contextual assumptions needed to establish its relevance. The context-dependence of implicatures is explained by the appeal not to non-deductive inference processes, but to variation in the contextual assumptions which combine with the utter-

ance to undergo regular deductive rules. By contrast, implicated assumptions, such as (12), are not derived by an inference process based on the content of the utterance at all. They arise from the same source as other contextual assumptions used in the processing of propositional information: from memory and imagination on the one hand, and observation of the physical environment on the other. Thus in our framework the appeal to non-deductive inference plays no direct role in the derivation of implicatures.

The principle of relevance also helps to explain why one implicated assumption, and more generally one set of contextual assumptions, is preferred to another. Why, when no previous mention has been made of the fact that the speaker of (2b) does not want to stay awake, does the hearer supply the assumption in (12) and derive the conclusion in (3) rather than supplying, say, the assumption that the speaker does want to be kept awake, and deriving the conclusion that she does want some coffee? The answer is that the assumption which satisfies the principle of relevance is the one that is most accessible. The literature on the organization of information in memory suggests that the more plausible and frequently used an assumption, the more accessible, and hence the cheaper to process, it will be. Assuming that the exchange in (2) takes place in the evening, and that there has been no previous discussion of whether the speaker does or does not want to stay awake, the assumption that she does not want to stay awake will be more plausible, and hence more accessible, than any alternative. Again, if this gives rise to a satisfactory range of contextual implications, the hearer should look no further: a speaker who did not intend him to use it should have rephrased her utterance to eliminate this interpretation, thus saving him the wasted effort

of going off on the wrong track. Hence the recovery of implicit assumptions and conclusions, like the choice of explicit content itself, is governed by the principle of relevance.

Turning to the expression of attitudes in an utterance such as (5), we assume that every proposition expressed and implicated must be seen as expressing one of two basic attitudes: belief and desire. (Here we will treat questions as expressing a desire for information; for an alternative account, see Sperber and Wilson forthcoming):

(5) *She:* You're not leaving.

Generally, the speaker's attitude to the proposition expressed will be explicitly indicated by the use of declarative, interrogative or imperative form. Where the same form may be used to express two different attitudes, the choice between them will be determined, as always, by the principle of relevance. Thus, when the surgeon says "Scalpel", the most immediately accessible assumption will be that he wants someone to hand him a scalpel; when a child looking at a picture book says "Elephant", the most immediately accessible assumption will be that he thinks he is looking at a picture of an elephant, and so on. Again, if the most accessible assumption yields an adequate range of contextual implications, it will be accepted as satisfying the principle of relevance.

In this framework, it is not the classification of utterances as, say, commands, requests or assertions that is necessary for comprehension, but a recognition of the propositional attitude, say belief or desire, that they express. Since beliefs and desires vary in their strength, it is reasonable to suppose that assumptions about the relative strength of the attitudes expressed

should also play a role in comprehension. Again, the fact that different assumptions will be accessible in different circumstances should affect the outcome of the comprehension process: for example, if you are in a marine equipment store and someone asks you to throw them a lifebelt, you will take this in the first instance as the expression of a much less urgent desire than if they have just fallen overboard from your yacht. The fact that a language may have a variety of names for the expression of beliefs and desires of different strengths – hints, suggestions, advice, orders, entreaties and so on – does not mean that the hearer has to attach one of these names to an utterance in order to understand it. All that is necessary is to make a more or less precise assumption about the degree of confidence or urgency that the speaker is trying to express. Thus speech act theory may turn out to be much less central to pragmatics than many people have supposed.

In the case of implicated assumptions and conclusions, the speaker's attitude will be assumed or inferred by an application of the principle of relevance. Suppose that the speaker of (5) is in a position to order the hearer to leave; suppose, too, that in the circumstances her utterance would be relevant neither as a description of what he is currently doing, nor as a guess about the future, but only as a totally confident prediction. A question that will naturally occur to the hearer is how she can be so confident that he is not going to leave. In the circumstances, the natural and most reasonable assumption is that she is not only in a position to order him not to leave, but is in fact ordering him not to leave. Only on this assumption will the confidence of her prediction be justified. In this way the declarative utterance (5) will be interpreted as an implicit

order.

The question raised by metaphorical utterances such as (6) and ironical utterances such as (7) is why a speaker should choose to express a proposition which she patently does not believe, in order to implicate another which she does:

(6) *She:* The audience snored throughout the film.

(7) *She:* I've never had such a lovely meal.

Why not simply express directly the proposition that she does believe? It is common in pragmatics to treat such utterances as violations of the pragmatic maxims or principles which operate in ordinary literal speech. Here we would like to suggest that, on the contrary, they conform to the principle of relevance and fall together with a whole range of utterances which would not normally be seen as figurative at all.

On our approach, the relevance of an utterance depends, on the one hand, on the range of contextual implications it conveys and on the other, on how economically it conveys them. Metaphorical utterances, and more generally utterances that are only loose approximations to the truth, may satisfy the principle of relevance by conveying a whole range of contextual implications in an extremely economical way. Thus, compare (19a) and (19b) as reports on a salary which is in fact given accurately in (19a):

(19) a. *She:* I earn £9,989.22p a year.

b. *She:* I earn £10,000 a year.

Under what circumstances should a speaker obser-

ving the principle of relevance choose to report her salary by means of the utterance in (19a)? It is obvious that the only reason for preferring this utterance would be if one was doing something like filling out a tax return, where the exact salary must be given in order for the exact tax liability to be computed. In virtually all other circumstances, the rough approximation in (19b) would be preferred, even though it is strictly speaking false. The reason, we would suggest, is that (19a) and (19b) share all their contextual implications except, precisely, for those which depend on the report being accurate down to the last penny. They would carry exactly the same implications, for example, about the speaker's status, lifestyle, job satisfaction and so on. However, of the two utterances (19b) is the less linguistically and conceptually complex, and hence the easier for a hearer to process. Thus, by the principle of relevance, in circumstances where there is no reason to assume that one is being given a report that is accurate down to the last penny or pound, (19b) should be preferred.

(19b), when used as a rough approximation, would normally be regarded as fully literal even though, as we have seen, it may be strictly speaking false. Our suggestion is that utterances which are properly speaking metaphorical fall into the same general class as the rough approximation in (19b). A metaphorical utterance is one which, even though it may be strictly speaking false, conveys a wide range of contextual implications more economically than any strictly true alternative. So, for example, a speaker observing the principle of relevance could quite reasonably say (6), expecting her hearer to establish its relevance by deriving a whole range of contextual implications about the dullness of the film and its stupefying effects on the audience, while

automatically discarding those implications which depend on the utterance's being an exact and literal description of the audience's physical state. This behaviour would only be surprising in a framework in which truthfulness is erected as an absolute standard of behaviour. In our framework relevance, not truthfulness, is the standard. Though an utterance will be judged irrelevant if it conveys no true information at all, as long as it conveys a satisfactory range of true contextual implications, and does so more economically than any alternative utterance that the speaker could have produced, it may quite well satisfy the principle of relevance, and there is no reason, in our framework, for regarding it as deviant at all.

Our approach to irony has been presented elsewhere (see Sperber and Wilson 1981). We regard irony as merely one of a variety of utterance-types in which the speaker does not express her own belief but echoes the beliefs of someone else and, perhaps, expresses her own attitude to those beliefs. Consider (20), for example:

(20) a. *He:* What did Mary say?

b. *She:* It's time to go.

The response in (20b) has two possible interpretations: on one, the speaker is expressing her own belief that it is time to go; on the other, she is echoing a belief expressed by Mary that it is time to go. As always, the choice between these two interpretations is dictated by the principle of relevance. In either case, the speaker may express her own attitude to the content of the utterance. In expressing her own belief, for example, she might indicate that she is sad, or relieved, that it is time to go; in echoing Mary's belief she might indicate that she distrusts or

endorses Mary's opinion, and so on. Sometimes, the whole point of echoing someone else's opinion is to indicate one's own attitude to it. Thus, compare (21) and (22):

(21) a. *He:* It's a lovely day for a picnic. [They go for a picnic and the sun shines.]

b. *She:* It's a lovely day for a picnic, indeed.

(22) a. *He:* It's a lovely day for a picnic. [They go for a picnic and it rains.]

b. *She:* It's a lovely day for a picnic, indeed.

In each case, the response in (b) echoes the opinion expressed in (a), but with different purposes in mind. The speaker of (21b) is clearly endorsing the opinion in (a), and the point of her utterance is to draw attention to the fact that his prediction has come true, they were right to set out for a picnic, and so on. In the case of (22b), however, the speaker is clearly ridiculing the opinion in (a), and the point of her utterance is precisely to show how silly he was to hold this opinion, how wrong they were to set out for a picnic, and so on. (22b) is, of course, ironical.

On this account, an ironical utterance is one that echoes an actual or possible opinion of a certain person or type of person, in order to dissociate oneself from it or make fun of it. Thus the speaker of (7) above is making fun of the sort of person who would enjoy the meal she has just had, or pretend to enjoy it, or serve it and expect people to enjoy it. The ironical attitude is just one among many attitudes that a speaker

might want to express to an opinion echoed. There is no more reason to regard irony as a violation of pragmatic maxims or principles than there is to see the echoic (20b) or (21b) as violations. Each has both echoic and non-echoic interpretations, which may be more or less accessible depending on the circumstances, and which will differ in their contextual implications. Choice of the correct interpretation will depend, as always, on the principle of relevance. Irony thus fits quite naturally into our account.

Finally, the principle of relevance sheds light on a variety of stylistic effects. Compare (8) and (9):

(8) Two taxis collided and 30 Scotsmen were taken to hospital.

(9) Scotsmen are very mean. They travel in enormously overcrowded taxis to avoid paying full fare. Once two taxis containing 30 Scotsmen collided. The passengers were taken to hospital.

According to the principle of relevance, the speaker should convey as much information as possible, as economically as possible. One way of economizing on the costs of linguistic processing is to leave unstated any contextual assumptions that the hearer can be expected to supply for himself. Thus the more elliptical the style, the more the hearer is trusted to see without prompting how the speaker's mind is working. By the same token, any time an assumption has to be explicitly spelled out, the implication is that the hearer would have been unable to supply it quickly enough for himself. Hence a speaker who spells out too much risks insulting the hearer's intelligence and destroying any rapport between

them. The differences in the effects of (8) and (9) are a direct result of the fact that what is explicitly spelled out in one is left implicit in the other. The hearer of (8) is trusted to see instantly and without prompting that he must supply the assumption that Scotsmen are so mean that they travel in grossly overloaded taxis - and to realize, moreover, that the speaker is not endorsing but merely ironically echoing an exaggerated version of a commonly held national stereotype. (8) is thus a compliment to the subtlety of the hearer's perceptions and a confirmation of his rapport with the speaker. (9) is, by contrast, a laborious spelling out and endorsement of the stereotype which is ironically echoed in (8).

Clearly, we have had no time in this brief survey to do more than hint at our treatment of some quite complex issues; this is developed at length in Sperber and Wilson (forthcoming). However, we hope to have shown that some genuine illumination of these issues is possible within the framework of relevance theory.

6 CONCLUDING REMARKS

Relevance theory is an attempt to build on Grice's basic insight that utterance interpretation is a largely inferential matter. The coding-decoding element in utterance interpretation is restricted to the recovery of the semantic representation of the sentence uttered - which may itself be overridden in the case of slips of the tongue, and will in any case be absent or defective in the case of utterances which are ungrammatical or incomplete. In this framework, the idea that pragmatic variation results from variation among arbitrary, grammar-like rules of prag-

matic interpretation must therefore be discarded.

What account of pragmatic variation emerges from our framework? Grice himself left open two possible approaches. On the one hand he saw his maxims as universal rational principles which anyone interested in efficient communication would be well-advised to observe. On this approach pragmatic variation could not be a result of variation in the pragmatic maxims themselves. On the other hand, he also toyed with the idea that the maxims might have had their origins in a social contract. If this were true, then the maxims, like other social principles, might be expected to vary from one society to another. Grice's frequent references to the fact that rational speakers can opt out of, and indeed deliberately violate the maxims lends further support to the view that pragmatic variation might result from variation among the maxims and their conditions of application from one society to another.

Many pragmatists (e.g. Keenan 1976) have taken up this second strand in Grice's thought. The picture of pragmatic variation that emerges is different in degree, but not in kind, from the one produced by the code model. Grice's maxims are treated as culture-dependent, and are supplemented by a range of further maxims, some clearly social (e.g. Leech's 1983 tact maxim), others clearly stylistic (e.g. Clark and Haviland's 1977 given-new contract), each needed to explain some puzzling feature of utterance interpretation. The resulting picture retains little of the universality and rationality that Grice originally envisaged.

In our framework, Grice's original idea is preserved and strengthened. Instead of an indefinite range of pragmatic maxims, there is a single prag-

matic principle which is never deliberately violated by a rational speaker, which remains invariant from situation to situation and culture to culture, and which has its origins not in a social contract, but in very general constraints on human cognition. Relevance, we suggest, is the single property that human beings look for in the propositional information they process, whatever its source. Information regarded as irrelevant, or not relevant enough, will simply be ignored. Hence, the only ground for communicating information at all is that one regards it as relevant enough to be worth the hearer's attention. Observing the principle of relevance is both the only reason for speaking, and the price that speakers have to pay to be listened to at all.

This is not to deny that pragmatic variation exists, but merely to question some accepted ideas about its source. In our framework, though the principle of relevance does not vary, what can vary from person to person, situation to situation and culture to culture is, in the first place the stock of assumptions that hearers can draw on in the interpretation process, in the second the accessibility of these assumptions, and in the third the amount of processing effort they are prepared to expend. As we have shown, all these factors play a crucial role in the interpretation of every utterance, and the more they vary, the more the output of the interpretation process itself will vary. Seen from this perspective, pragmatic variation might provide some interesting indirect evidence on the organization of memory, the accessibility of assumptions and the allocation of processing resources, and should thus be a valuable area for future research.

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